

wherein:

X₁ and X₂ are each independently H₂ or CH₂, provided X₁ and X₂ are not both =CH₂;

R₁ and R₂ are each independently hydroxyl, OC(O)C₁-C₄ alkyl, OC(O)hydroxyalkyl or OC(O)haloalkyl, provided that R₁ and R₂ are not both hydroxyl;

R₃ and R₄ are each independently hydrogen, C₁-C₄ alkyl, hydroxyalkyl or haloalkyl or

R₃ and R₄ taken together with C₂₀ form C₃-C₆ cycloalkyl; and

R₅ and R₆ are each independently C₁-C₄ alkyl, hydroxyalkyl or haloalkyl; or pharmaceutically acceptable esters[,] and salts[,] ~~and prodrugs~~ thereof.

3. (Currently amended) The method according to claim 2, which further comprises the step of obtaining or synthesizing the Vitamin D₃ compound.

4. (Previously presented) The method according to claim 3, wherein the Vitamin D₃ compound is formulated in a pharmaceutical composition together with a pharmaceutically acceptable diluent or carrier.

5. (Cancelled)

6. (Cancelled)

7. (Withdrawn) A kit containing a Vitamin D compound together with instructions directing administration of the Vitamin D compound to a patient in need of prevention or treatment of bladder dysfunction thereby to prevent or treat bladder dysfunction in said patient.

8. (Withdrawn) A kit according to claim 7 wherein the Vitamin D compound is formulated in a pharmaceutical composition together with a pharmaceutically acceptable diluent or carrier.

9. (Previously presented) The method according to claim 2, wherein said Vitamin D₃ compound is a Vitamin D receptor agonist.

10 - 12. (Cancelled)

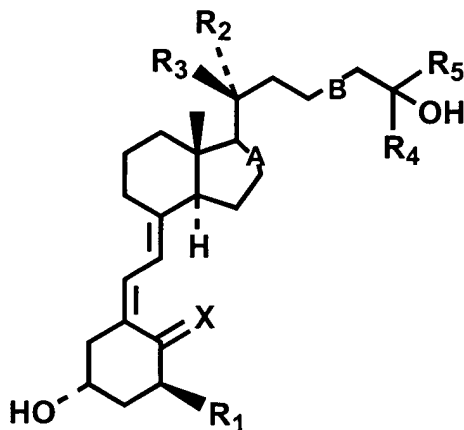
13. (Previously presented) The method according to claim 2, wherein said patient is a male.

14. (Cancelled)

15. (Previously presented) The method according to claim 2, wherein said patient is a female.

16. (Previously Presented) The method according to claim 2, wherein the patient is a human.

17. (Currently Amended) ~~The A method according to claim 2, wherein said Vitamin D₃ compound is~~ for preventing or treating overactive bladder in a patient comprising administering to a patient in need thereof an effective amount of a compound of the formula



wherein:

X is H₂ or CH₂;

R₁ is hydrogen, hydroxy or fluorine;

R₂ is hydrogen or methyl;

R₃ is hydrogen or methyl, wherein when R₂ or R₃ is methyl, R₃ or R₂ must be hydrogen;

R₄ is methyl, ethyl or trifluoromethyl;

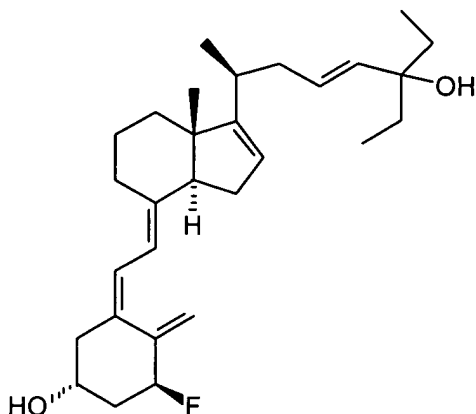
R₅ is methyl, ethyl or trifluoromethyl;

A is a single or double bond; and

B is a single, E-double, Z-double or triple bond; or pharmaceutically acceptable esters and salts thereof.

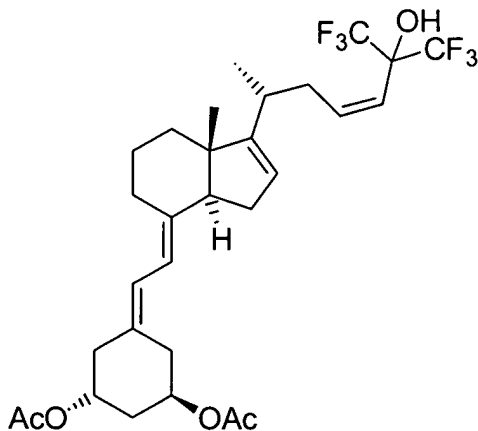
18. (Previously Presented) The method according to claim 17, wherein each of R₄ and R₅ is methyl or ethyl.

19. (Previously presented) The method according to claim 18, wherein said Vitamin D₃ compound is 1-alpha-fluoro-25-hydroxy-16,23E-diene-26,27-bishomo-20-epi-cholecalciferol, having the formula:



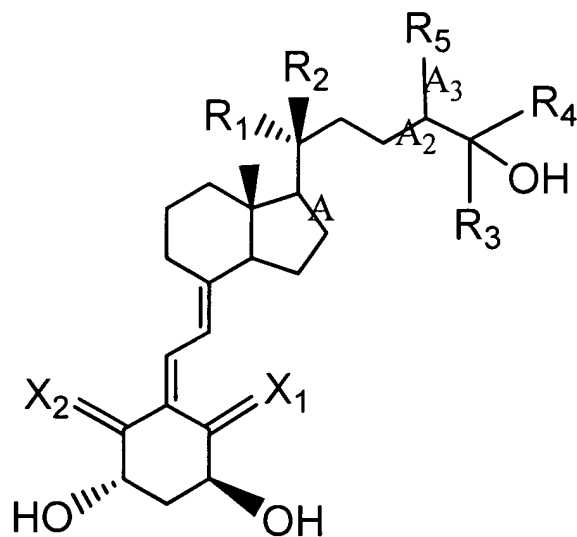
20. (Previously presented) The method according to claim 2, wherein said Vitamin D₃ compound is 1,25-dihydroxy-16-ene-23-yne cholecalciferol.

21. (Previously presented) The method according to claim 2, wherein said Vitamin D₃ compound is 1,3-di-O-acetyl-1,25-dihydroxy-16,23Z-diene-26,27-hexafluoro-19-nor-cholecalciferol, having the formula:



22. (Previously presented) The method according to claim 2, wherein said Vitamin D₃ compound is calcitriol.

23. (Previously presented) The method according to claim 2, wherein said Vitamin D₃ compound is a compound of the formula



wherein:

X₁ and X₂ are H₂ or CH₂, wherein X₁ and X₂ are not CH₂ at the same time;

A is a single or double bond;

A₂ is a single, double or triple bond;

A₃ is a single or double bond;

R₁ and R₂ are hydrogen, C₁-C₄ alkyl or 4-hydroxy-4-methylpentyl, wherein R₁ and R₂ are not both hydrogen;

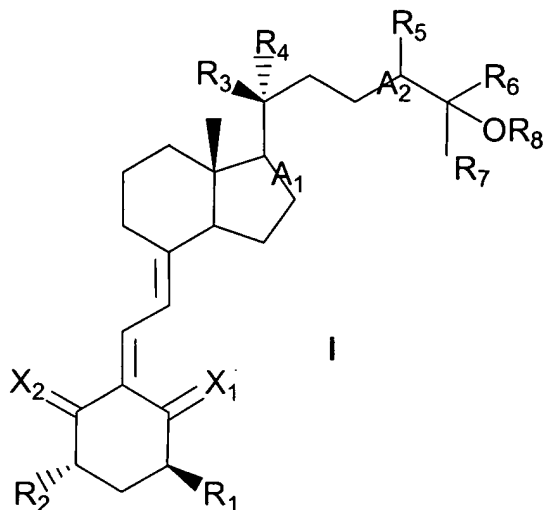
R₅ is hydrogen, H₂ or oxygen;

R₃ is C₁-C₄ alkyl, hydroxyalkyl or haloalkyl; and

R₄ is C₁-C₄ alkyl, hydroxyalkyl or haloalkyl.

24. (Previously presented) The method according to claim 23, wherein the compound is 1,25-dihydroxy-16-ene-23-yne cholecalciferol.

25. (Previously presented) The method according to claim 2, wherein said Vitamin D₃ compound is a compound of the formula



A₁ is single or double bond;

A₂ is a single, double or triple bond;

X₁ and X₂ are each independently H₂ or CH₂, provided X₁ and X₂ are not both CH₂;

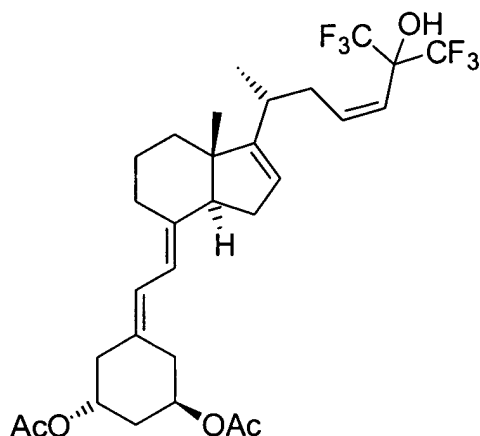
R₁ and R₂ are each independently OC(O)C₁-C₄ alkyl, OC(O)hydroxyalkyl or OC(O)haloalkyl;

R₃, R₄ and R₅ are each independently hydrogen, C₁-C₄ alkyl, hydroxyalkyl, or haloalkyl, or R₃ and R₄ taken together with C₂₀ form C₃-C₆ cycloalkyl;

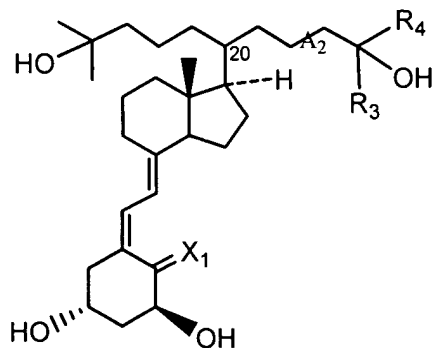
R₆ and R₇ are each independently C₁₋₄alkyl or haloalkyl; and

R₈ is H, -COC₁-C₄alkyl, -COhydroxyalkyl or -COhaloalkyl.

26. (Previously presented) The method according to claim 25, wherein the compound is 1,3-di-O-acetyl-1,25-dihydroxy-16,23Z-diene-26,27-hexafluoro-19-nor-cholecalciferol:



27. (Previously presented) The method according to claim 2, wherein said Vitamin D₃ compound is a compound of the formula:



X₁ is H₂ or CH₂;

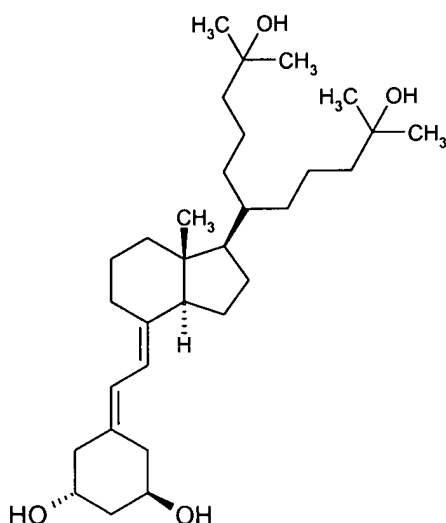
A₂ is a single, a double or a triple bond;

R_f is C₁-C₄ alkyl, hydroxyalkyl, or haloalkyl;

R₄ is C₁-C₄ alkyl, hydroxyalkyl or haloalkyl; and

the configuration at C₂₀ is R or S.

28. (Previously presented) The method according to claim 27, wherein said vitamin D compound is 1,25-dihydroxy-21-(3-hydroxy-3-methylbutyl)-19-nor-cholecalciferol:



1,3-Di-O-acetyl -1,25-dihydroxy-20-cyclopropyl-23-yne-26,27-hexafluoro-19-nor-cholecalciferol;

1,25-dihydroxy-21-(3-hydroxy-3-trifluoromethyl-4-trifluoro-butynyl)-26,27-hexadeutero-19-nor-20S-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-16,23E-diene-cholecalciferol;

1,25-dihydroxy-16-ene-20-cyclopropyl-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-20-cyclopropyl-23-yne-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-16-ene-24-keto-19-nor-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-20-cyclopropyl-23Z-ene-26,27-hexafluoro-19-nor-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-16-ene-23-yne-26,27-hexafluoro-cholecalciferol;

1,25-Dihydroxy-16-ene-20-cyclopropyl-23-yne-26,27-hexafluoro-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-16-ene-19-nor-cholecalciferol;

1,25-dihydroxy-21-(3-hydroxy-3-methylbutyl)-19-nor-cholecalciferol;

1,25-dihydroxy-21-(3-hydroxy-3-methylbutyl)-19-nor-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-16-ene-23-yne-19-nor-cholecalciferol; or

1, 3-Di-O-acetyl-1,25-dihydroxy-20-cyclopropyl-23E-ene-26,27-hexafluoro-19-nor-cholecalciferol.

30. (Previously presented) The method according to claim 2, wherein said Vitamin D₃ compound is a compound of the formula:

1-alpha-fluoro-25-hydroxy-16,23E-diene-26,27-bishomo-20-epi-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-16-ene-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-16-ene-23-yne-cholecalciferol;

1,25-Dihydroxy-16,23E-diene-20-cyclopropyl-26,27-hexafluoro-cholecalciferol;

1,3-Di-O-acetyl -1,25-dihydroxy-20-cyclopropyl-23-yne-26,27-hexafluoro-19-nor-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-16,23E-diene-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-16-ene-23-yne-26,27-hexafluoro-cholecalciferol;

1,3-Di-O-acetyl-1,25-dihydroxy-16-ene-19-nor-cholecalciferol; or

1, 3-Di-O-acetyl-1,25-dihydroxy-20-cyclopropyl-23E-ene-26,27-hexafluoro-19-nor-cholecalciferol.

31. (Previously presented) The method according to claim 2, wherein said Vitamin D₃ compound is calcitriol.